

REMARKS

This application contains claims 1-52. Claims 11, 12, 26, 38, 39 and 50 have been canceled without prejudice. Claims 1, 16, 25, 30, 40, 49 and 51 are hereby amended. No new matter has been introduced. Reconsideration is respectfully requested.

Claims 1-3, 9-11, 13, 14, 16-18, 27-32, 38, 40-42 and 52 were rejected under 35 U.S.C. 102(b) over Bremer et al. (U.S. Patent 6,032,190). Applicant has amended independent claims 1, 16, 30 and 40 to clarify the distinction of the present invention over the cited art. Claims 25, 49 and 51 have been amended to accord with the amended independent claims from which they depend.

Bremer describes a system and method for processing data packets in order to determine packet routing through a communication network. A processing core processes the header portion of the packet, using a route table and a table memory, in order to generate a modified header for routing the data packet through the network (abstract). The data portion of each packet is held in a data buffer memory (col. 5, lines 26-30, for ingress, and col. 6, lines 1-3, for egress) while the header portion is processed.

Claim 1 has been amended to incorporate the limitations of claims 11 and 12, now canceled. The amended claim recites a network interface device comprising host interface logic, which receives frames of outgoing data from a host processor. Each frame includes header information and payload data, wherein the header information includes a variable data length parameter. A transmit protocol processor generates a plurality of outgoing packet headers based on the outgoing header information. Transmit logic then selects - responsively to the data length parameter - a corresponding portion of

the payload data to associate with each of the packet headers.

The network interface device thus distributes the frame of payload data among a sequence of outgoing packets, conforming to the specified data length. This feature of the present invention is useful, for example, in fragmenting a TCP frame among multiple IP packets or in generating multicast packets (page 16, line 23 - page 17, line 8, in the specification). The network interface device performs these functions autonomously, without burdening the host processor.

In rejecting claim 11 in the present official action, the Examiner referred to DMA 63 and queues 72 in Bremer's Fig. 3. Bremer's system, however, simply passes through the data portion of each packet, without performing any sort of selection, as recited in amended claim 1, and without regard to any sort of frame structure to which the patents might belong. Furthermore, Bremer neither teaches nor suggests the use of a variable data length parameter in selecting the data for inclusion in each packet.

In relation to claim 12 in the present official action, the Examiner acknowledged that Bremer does not disclose a variable length parameter (as recited in amended claim 1), but maintained that this element could be learned from Narisi et al. (U.S. Patent 6,810,431). Narisi describes a distributed transport communications manager, for enabling a transport protocol executing on a first computer system to be used by applications executing on a second computer system (abstract). In reference to claim 12, the Examiner referred to a "MSS Data Structure" used in a messaging subsystem (MSS) for communication between the computer systems, which includes a data length parameter (col. 29, lines 54-55).

Applicant will readily acknowledge that data length parameters have long been a part of communication

protocols known in the art, and have been used by computers in generating data packets within specified length constraints, as described by Narisi, for example. The cited art neither teaches nor suggests, however, that the transmit logic of a network interface device might receive and use such a parameter in order to select payload data from a frame for inclusion in a sequence of data packets, as recited in amended claim 1. There is no motivation provided either by Bremer or Narisi that would have led a person of ordinary skill in the art to apply Narisi's data length parameter in Bremer's system, since Bremer's system in any case processes single packets one by one. Therefore, claim 1, as amended, is believed to be patentable.

In view of the patentability of claim 1, claims 2, 3, 9, 10, 13 and 14, which depend from claim 1, are also believed to be patentable.

Claim 30 recites a method for transmitting data over a packet network, based on principles similar to the network interface device of claim 1. Claim 30 was rejected on similar grounds to claim 1, and has been similarly amended to incorporate the limitations of claims 38 and 39, now canceled. Claim 30 is therefore believed to be patentable for the reasons explained above. In view of the patentability of claim 30, claims 31 and 32, which depend from claim 30, are also believed to be patentable.

Claim 16 has been amended to incorporate the limitations of claim 26, now canceled, and a part of the limitations of claim 25. Amended claim 16 recites a network interface device comprising receive logic, which receives incoming data packets from a network. The receive logic comprises a control register, which is programmed with a length parameter. This parameter indicates to the receive logic how many bits of each packet to select for inclusion in a header portion of the

packet, which is then written to an incoming header memory. A data portion of the incoming data is received in an incoming data memory.

A receive protocol processor processes the header portion to generate incoming header information for the host processor. The header information includes an instruction indicating the length of the payload data to read from the data memory. Responsively to this instruction, host interface logic associates the incoming header information with the incoming payload data, and thus generates an incoming data frame for delivery to the host processor. This feature of the present invention enables the network interface device to deal autonomously with network protocols, such as TCP/IP, that permit variable header and payload lengths (page 18, lines 4-22).

In relation to claims 25 and 26, the Examiner acknowledged that Bremer does not disclose the use of an instruction to the host interface logic that indicates the payload data length, or a control register in the receive logic that is programmable with a header length parameter. The Examiner maintained that these features are taught by Narisi. As explained above in reference to claim 1, however, Narisi refers to header and data length parameters (col. 29, lines 52-55) in the general context of a communication protocol. Narisi makes no suggestion that such parameters might be used to control the operations of a receive protocol processor and host interface logic in a network interface device, as recited in claim 16, nor is there any motivation in Bremer to incorporate such parameters in Bremer's system.

Thus, claim 16 is believed to be patentable over the cited art. In view of the patentability of claim 16, claims 17, 19 and 27-29, which depend from claim 16, are also believed to be patentable.

Claim 40 recites a method for processing data received over a packet network, based on principles similar to the network interface device of claim 16. Claim 40 was rejected on similar grounds to claim 16, and has been similarly amended to incorporate the limitations of claim 50, now canceled, and a part of the limitations of claim 49. Claim 40 is therefore believed to be patentable for the reasons explained above. In view of the patentability of claim 40, claims 41, 42 and 52, which depend from claim 40, are also believed to be patentable.

Claims 4-6, 12, 19-21, 25, 26, 33-35, 39, 43-45 and 49-51 were rejected under 35 U.S.C. 103(a) over Bremer in view of Narisi et al. (cited above). Claims 12, 26, 39 and 50 have been canceled. In view of the patentability of the amended independent claims in this case, as explained above, dependent claims 4-6, 19-21, 25, 33-35, 43-45, 49 and 51 are also believed to be patentable.

Claims 7, 8, 15, 22-24, 36, 37 and 46-48 were rejected under 35 U.S.C. 103(a) over Bremer in view of Denton et al. (U.S. Patent 6,041,043), or over Bremer in view of Denton and further in view of Narisi, or over Bremer in view of Bechtolsheim et al. (U.S. Patent 6,343,072). In view of the patentability of the amended independent claims in this case, as explained above, dependent claims 7, 8, 15, 22-24, 36, 37 and 46-48 are likewise believed to be patentable.


Applicant has studied the additional references made of record, and believes the claims currently pending in this patent application to be patentable over these references, where they are taken individually or in any combination.

Applicant believes the amendments and remarks presented hereinabove to be fully responsive to all of the grounds of rejection raised by the Examiner. In view of these amendments and remarks, Applicant respectfully

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submits that all of the claims in the present application are in order for allowance. Notice to this effect is hereby requested.

Respectfully submitted,


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